Central Coast Broadband Consortium

In the Matter of	)	
Inquiry Concerning Deployment of	)	
Advanced Telecommunications Capability	)	GN Docket No. 18-238
to All Americans in a Reasonable and	)	
Timely Fashion	)	

Comments of the Central Coast Broadband Consortium, in reference to The Fourteenth Broadband Deployment Report Notice of Inquiry

Introduction

The Central Coast Broadband Consortium welcomes this opportunity to respond to the Fourteenth Broadband Deployment Report Notice of Inquiry (NOI) adopted by the Federal Communications Commission on 8 August 2018.

Per California Public Utilities Commission (CPUC) Resolution T-17529, the CCBC is the California Advanced Services Fund (CASF) consortia grant recipient representing Monterey, San Benito and Santa Cruz Counties. The CCBC is dedicated to improving broadband availability, access and adoption in Monterey, Santa Cruz and San Benito Counties, and has a long history of broadband development projects implemented by our members and as a group.

The top priority of the CCBC is providing resources and incentives to telecommunications service providers, including local government agencies, to build broadband infrastructure and extend it throughout Monterey, San Benito and Santa Cruz counties. Our members include city and county governments, local schools and higher education institutions, private businesses and non-profit organizations, including the Monterey Bay Economic Partnership (MBEP).

MBEP is a regional nonprofit, membership organization consisting of public, private and civic entities located throughout the counties of Monterey, San Benito and Santa Cruz. Its mission is to improve the economic health and quality of life in the region.

MBEP's work is accomplished through targeted initiatives:

- Transportation: improving how we move within and between our cities to impact the well-being of our residents.
- Housing: ensuring the availability of safe and affordable housing.
- Workforce development: helping local businesses hire local talent and providing resources to enable residents to make a living wage.
- Technology: supporting a thriving tech ecosystem in the region.

1. Fixed broadband service benchmark

1.1. The minimum acceptable broadband speed which qualifies as "advanced telecommunications capability" is 100 Mbps download and 20 Mbps upload

On 8 November 2017, a region-wide economic development conference was convened in Seaside, California by MBEP. Broadband access was anecdotally identified as 1. a critical resource for future growth and prosperity, and 2. seriously deficient in our region. In response, MBEP, through its Tech Ecosystem Committee, partnered with the CCBC and assembled a Broadband Leadership Team composed of city managers, supervisors, ISP management, and technical staff from educational institutions.

After a thorough analysis of broadband availability and needs in the Central Coast Region, as described below, the Broadband Leadership Team determined that 100 Mbps download and 20 Mbps upload speeds (herein, 100/20) is the minimum broadband service level that will meet the economic, educational and quality of life goals, and otherwise provide the benefits of "advanced telecommunications capability" in the Central Coast region.

1.2. Affordability is an essential criterion for determining if broadband access is sufficient

As the research and analysis below indicates, service providers are willing to provide broadband service on a spot basis virtually anywhere in our region, for a price. Some times this price is just out of reach of residents – e.g. slow fixed wireless Internet service offered for $150 to $200 per month to residents who cannot afford more than $50 to $100 per month and require 100/20 service – or uneconomic for business, e.g. commercial fiber or wireless links running thousands of dollars per month.

It is the perception of consumers and businesses in the region that adequate service is unavailable, as noted below. In making this assessment, consumers and businesses factor in price. If they cannot afford 100/20 service, then such access is unavailable.

1.3. MBEP Broadband Leadership Team

The following is the list of participants in the Broadband Leadership Team:

- Ray Corpuz, City of Salinas
- Peggy Dolgenos, Cruzio
- John Freeman, City of San Juan Bautista
- Zach Friend, County of Santa Cruz
- Chris Frost, Cruzio
- James Hackett, Cruzio
- Matt Huffaker, City of Watsonville
- Mary Ann Leffel, Monterey County Business Council
- Chip Lenno, California State University Monterey Bay
- Maureen McCarty, California Assemblymember Mark Stone's office
- René Mendez, City of Gonzales
- Andy Myrick, City of Salinas
- Larry Samuels, California State University Monterey Bay
- Brad Smith, University of California, Santa Cruz
- Jim Warner, University of California, Santa Cruz
- Steve Blum, Tellus Venture Associates

The Broadband Leadership Team grew out of a need for high-speed internet coverage in the Monterey Bay region. The State of California previously established an arbitrary standard of 98% broadband coverage. With more recent legislation the State lowered the standard for broadband to be defined as 6 Mbps download and 1 Mbps upload speeds. Based on this modified standard, the State determined that broadband exists in all but 20,000 homes and businesses in California, whereas under the previous standard determined that 300,000 homes and businesses did not have coverage. The majority of state infrastructure funding was removed by this new legislation.

Our Tech Ecosystem Committee agreed that California standards of 6 Mbps download and 1 Mbps upload were woefully inadequate for current users' needs in our region. The Broadband Leadership Team was conceived to establish new regional standards and take action in providing true high-speed coverage for all areas including underserved communities.

1.4. Current Assessment: Coverage in the Monterey Bay Region

In 2017 the region made a major leap forward with the completion of the Sunesys fiber optic middle mile project. This facility provides a fiber backbone from Soledad up to Santa Cruz, terminating at the University of California, Santa Cruz. Local ISPs can now leverage this high-speed fiber infrastructure to offer gigabit service. Gigabit service is not pervasive throughout the region because funding is needed for building middle and last mile infrastructure. Some ISPs have developed a

business model to bring this premium service to both businesses and residential customers. As of mid 2018 Cruzio has lit up both downtown Santa Cruz and Watsonville with gigabit service.

One barrier to broadband development funding is incumbent providers' service claims in census blocks in the region. The primary broadband providers are AT&T, Comcast and Charter Communications, with Frontier Communications providing some service in small areas in the north and south of the region. AT&T's last mile infrastructure is largely based on copper, and therefore is mostly limited to speeds of 25 Mbps download and 3 Mbps upload, or less. Comcast is able to provide higher speeds due to its infrastructure, but speeds and performance fluctuate significantly based on time of day and the number of users online at a specific time. However, competitive ISPs, such as Cruzio, cannot receive state or federal funding to build modern infrastructure in the areas covered by AT&T, Comcast and Charter. Overall lack of competition gives these providers no incentive to improve speeds and service beyond what is offered even though users' needs may be drastically different.

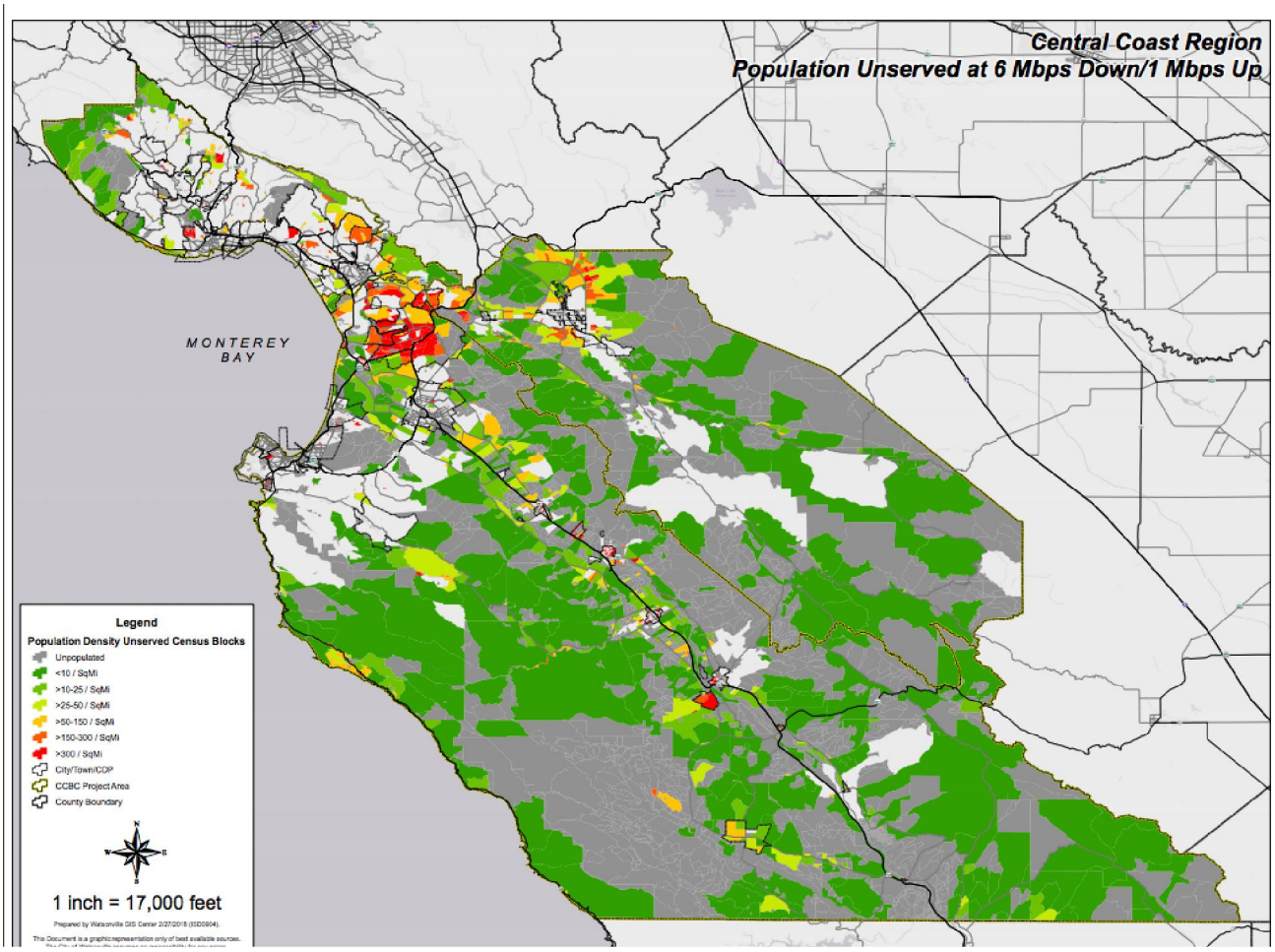
The following is a full list of ISPs in the region:

- AT&T
- CENIC
- Charter
- Comcast
- Cruzio
- Etheric
- Frontier Communications
- HughesNet (satellite)
- Pinnacles Telephone Company
- Razzolink
- RedShift
- SoMoCo (wireless)
- Sonic.net
- Suddenlink
- Surfnet
- Verizon
- Viasat (satellite)

ISPs offer broadband through wireline, mobile, fixed wireless, and satellite service. The latest CPUC reports show coverage as of December 2016 for primary wireline service only (not wireless or satellite). The coverage maps show reported (not actual) speeds from ISPs for residential customers only. Commercial use data is incomplete. However, it should be noted that if even one resident in a particular census block has service and others do not, the CPUC will consider that census block "served." A designated "served" census block is not eligible for CPUC grants to upgrade

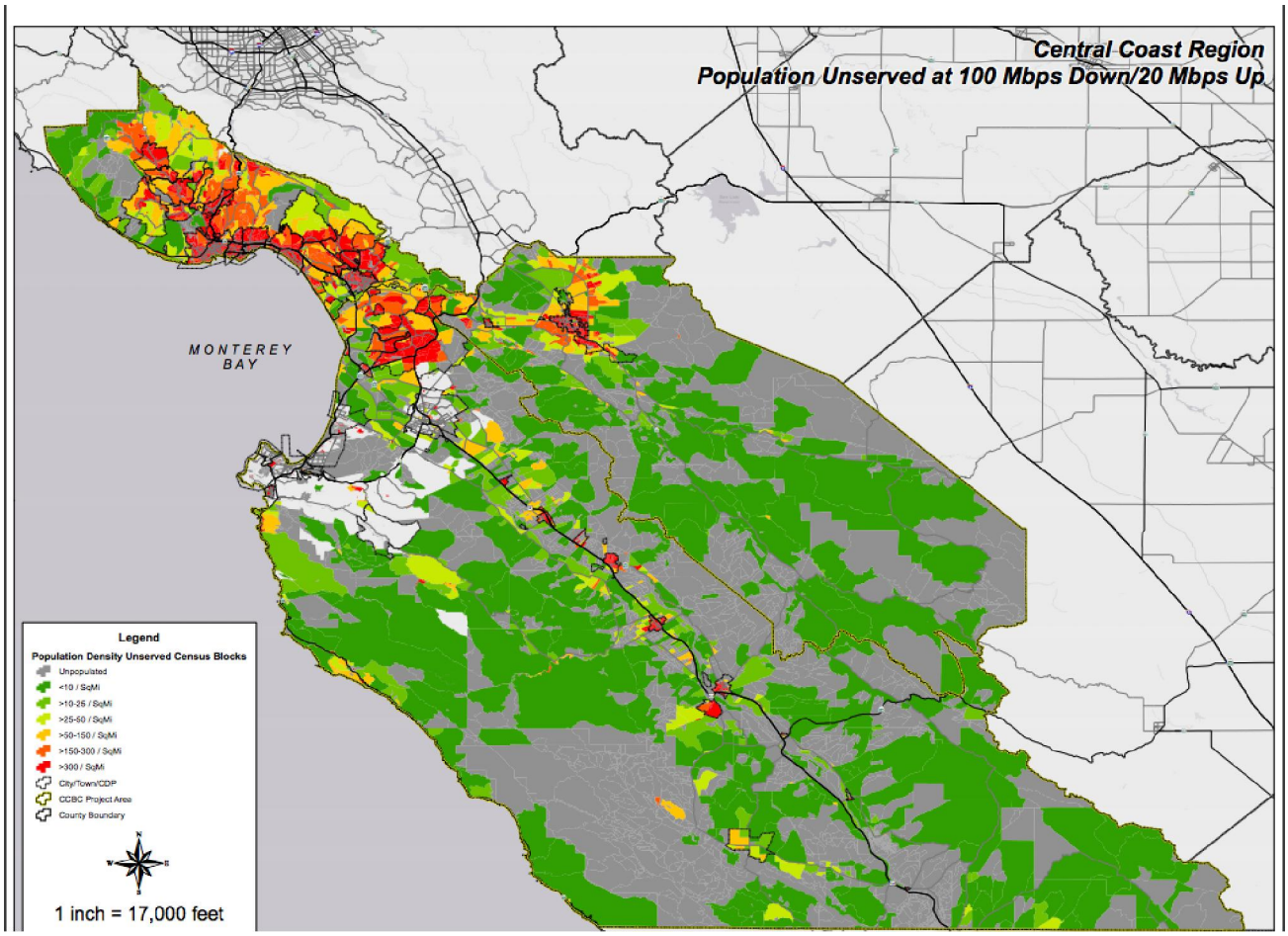
infrastructure and increase speeds. As a result the coverage maps represent a best case scenario, not a realistic view.

Unserved Census Blocks by Population Density (6 Mbps down/1 Mbps up), as of Dec. 2016



Based on the California legislature standard of 6 download and 1 upload shown above, much of the region is still currently unserved.

Unserved Census Blocks by Population Density (100 Mbps down/20 Mbps up), as of Dec. 2016



Based on a standard of 100 download and 20 upload, the vast majority of the region is unserved, in both highly and less densely populated census blocks.

1.5. Broadband Needs

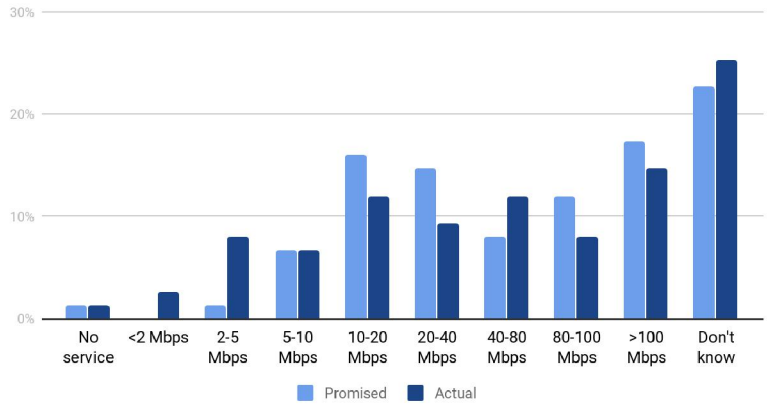
Rather than relying on California or federal standards for defining high-speed broadband access the team decided to establish broadband service standards that are based on regional needs, both for today and for the future. The group also agreed that the standards should be realistic and attainable based on cost/benefit analysis (e.g., planning for gigabit fiber throughout the region would be cost prohibitive and impractical from an infrastructure standpoint).

The first step was to assess the needs of the businesses and consumers in the Monterey Bay region. We gathered data from the Broadband Leadership Team on broadband applications and use cases. It became apparent that more research was needed for a thorough analysis. In April 2018 we created a survey to the entire region for both businesses and consumers. We received 187 responses to the business survey and 155 responses to the consumer survey.

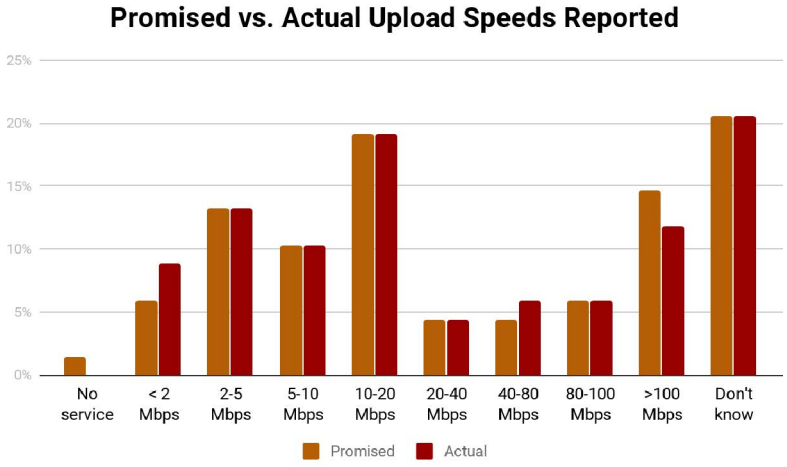
1.6. Survey Results

The survey covered a number of topics, including satisfaction levels with speed and service providers, use cases for high-speed broadband, willingness to pay for higher speed service and reliability, and promised versus actual speeds delivered.

Actual speeds for businesses who answered the survey varied greatly, with over 20% reporting that they didn't know their speeds.

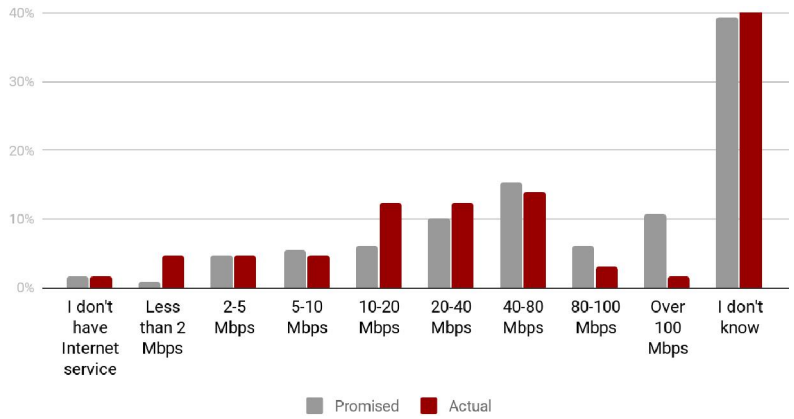


Source: 2018 MBEP Broadband Business Survey



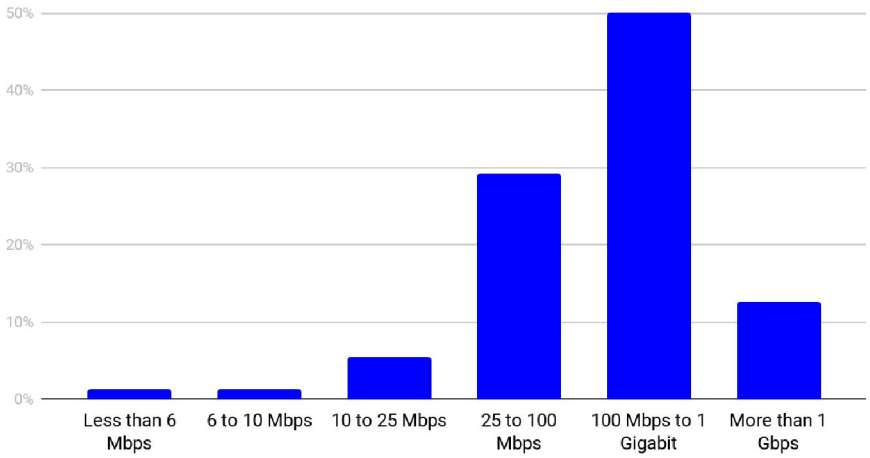
Source: 2018 MBEP Broadband Business Survey

For consumers, approximately 40% did not know their promised and actual speeds.

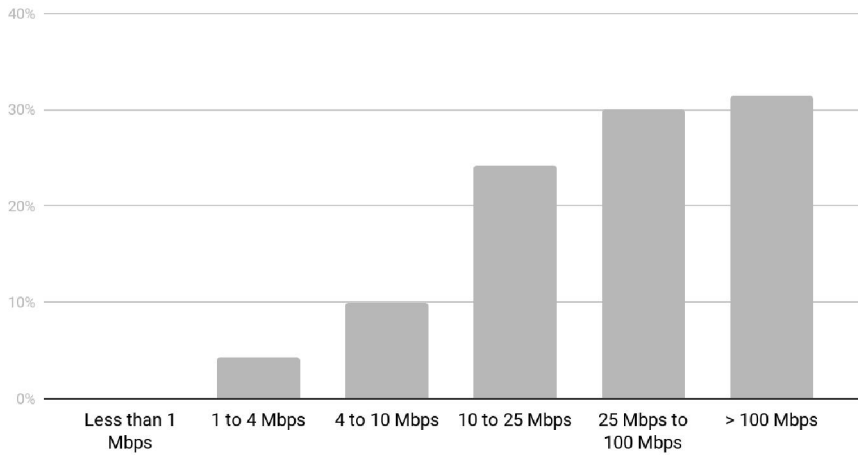


Source: 2018 MBEP Broadband Consumer Survey

When asked about ideal download and upload speeds, 63% of business respondents stated they would like to have 100 Mbps or higher download and 61% stated they would like to have 25 Mbps or higher upload.

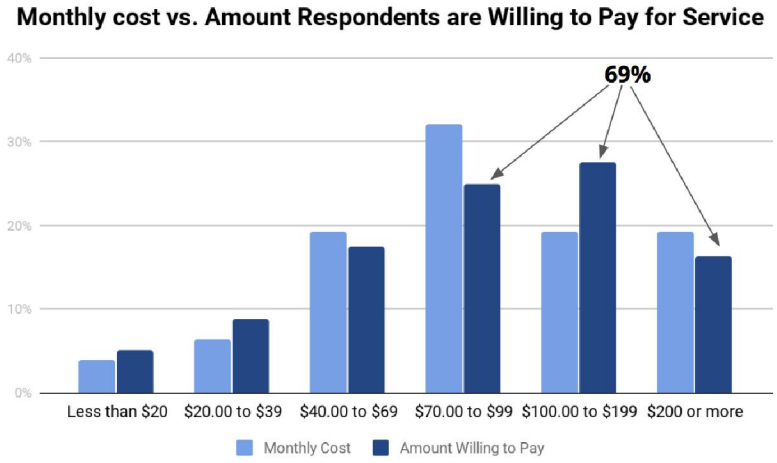


Source: 2018 MBEP Broadband Business Survey



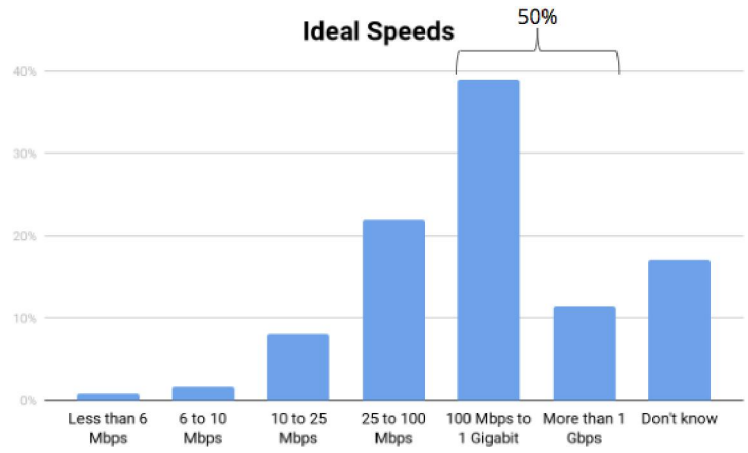
Source: 2018 MBEP Broadband Business Survey

69% of these businesses said they would be willing to pay $70 or more per month.



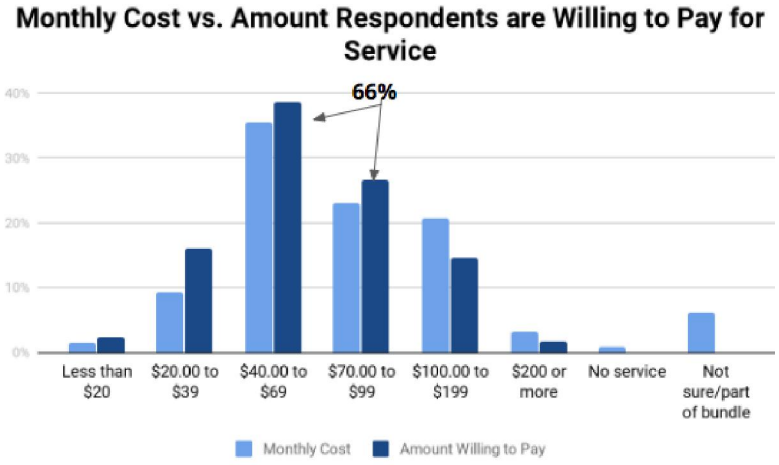
Source: 2018 MBEP Broadband Business Survey

50% of respondents in the consumer survey stated that they would like to have download speeds of 100 Mbps or more.



Source: 2018 MBEP Broadband Consumer Survey

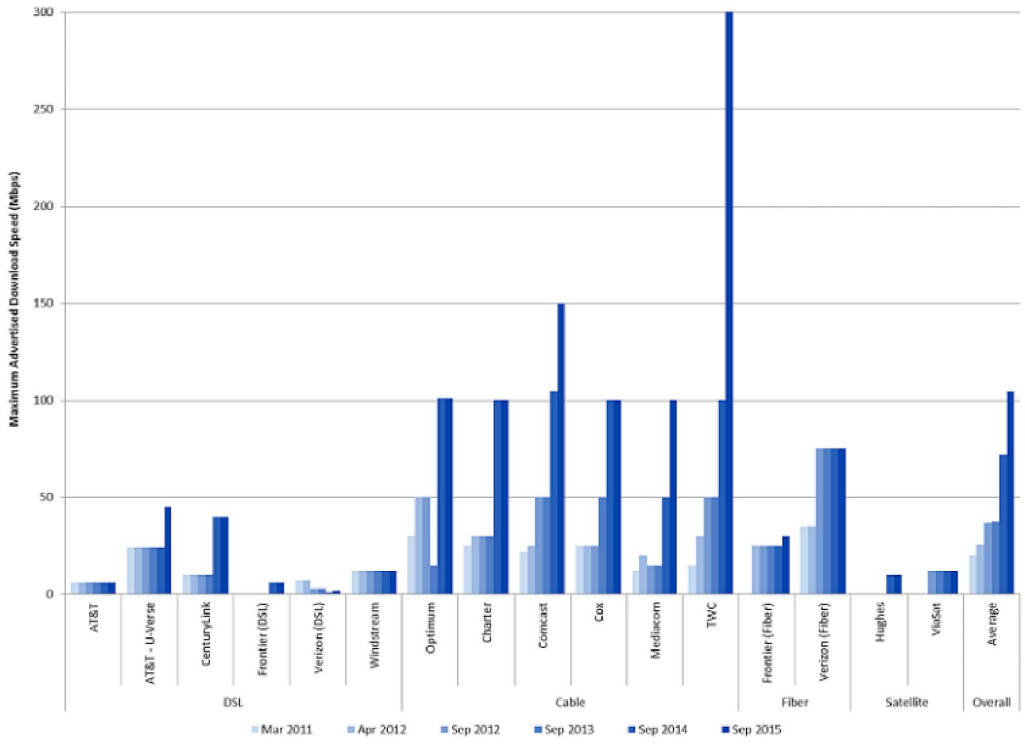
66% of consumers said they were willing to pay $40 to $99 a month for their ideal speeds.



Source: 2018 MBEP Broadband Consumer Survey

On a nationwide basis, as of the end of 2015, advertised download speeds varied greatly, with only one provider (TWC, which does not serve the Monterey Bay region) offering 300 Mbps download speeds.

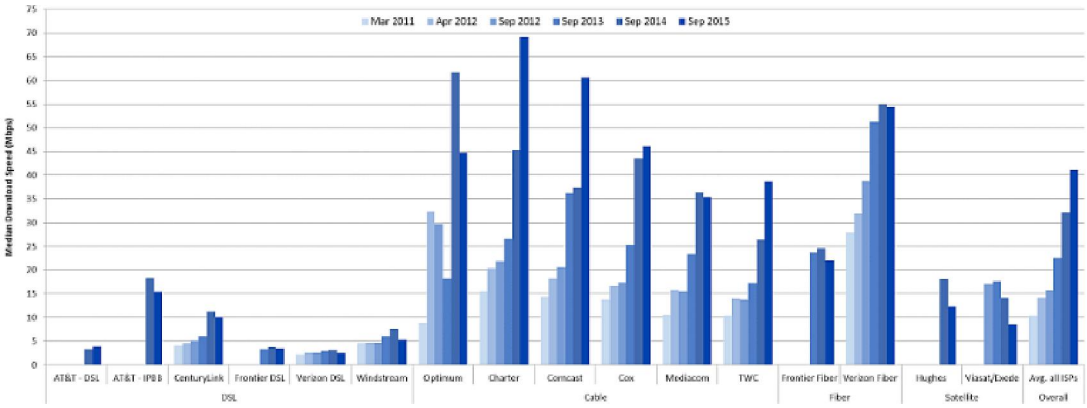
Maximum Advertised Download Speed by Provider



Source: 2016 FCC Measuring Fixed Broadband Report

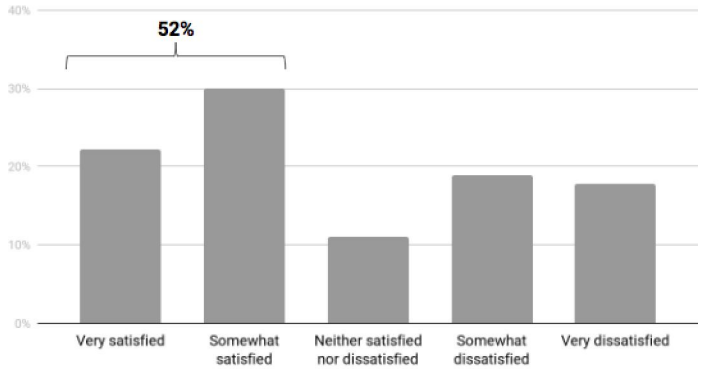
Actual speeds measured were often 25% to 50% lower than advertised.

Median Download Speeds by ISP

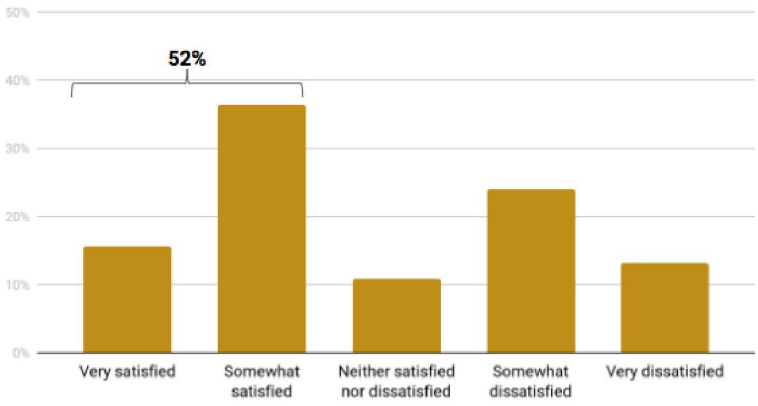


Source: 2016 FCC Measuring Fixed Broadband Report

In the MBEP survey, 52% of businesses and consumers reported that they were very or somewhat satisfied with their internet speeds and service.

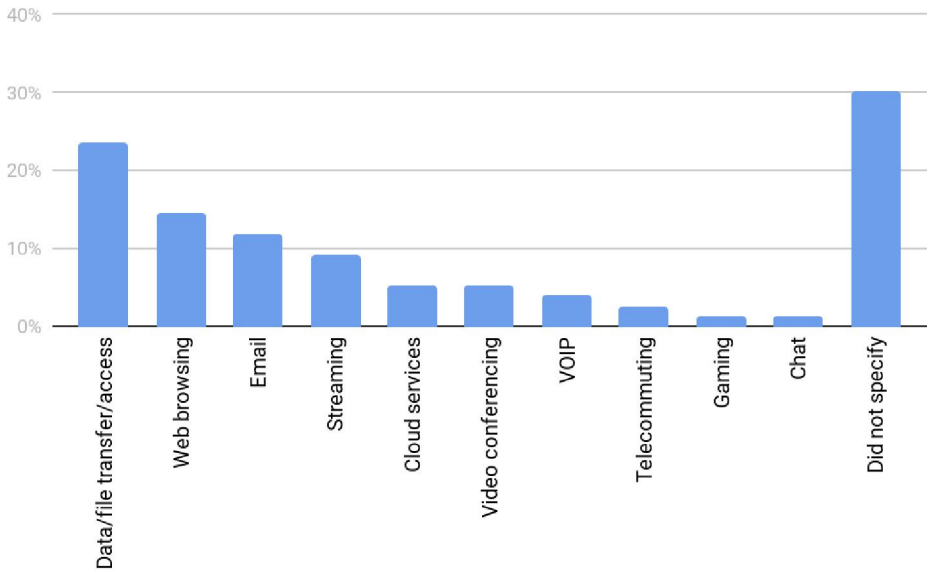


Source: 2018 MBEP Broadband Business Survey

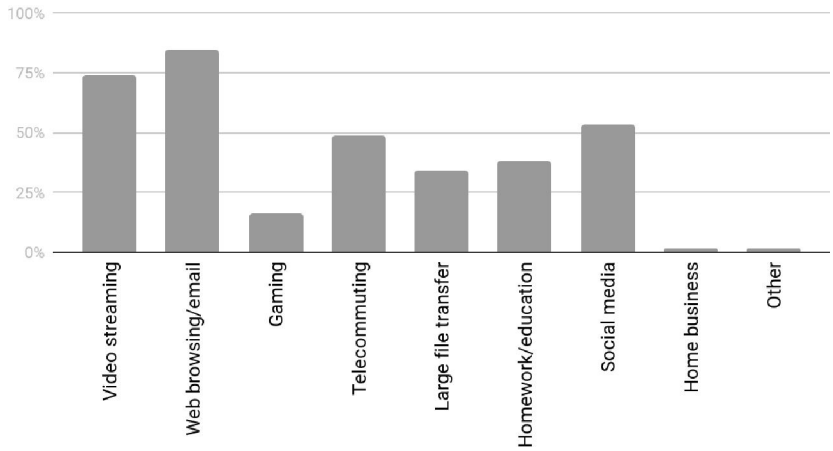


Source: 2018 MBEP Broadband Consumer Survey

Business respondents primarily require high-speed broadband for data and file transfer as well as web browsing, whereas consumers cited video streaming, web browsing and email as the primary uses.



Source: 2018 MBEP Broadband Business Survey



Source: 2018 MBEP Broadband Consumer Survey

Based on the survey results, the following matrix of acceptable speeds was established by audience for review by the Broadband Leadership Team.

	6 down/ 1 up CA legislature min	25 down/ 3 up FCC/USDA baseline	100 down/20up FCC "above baseline"	250 down/20 up CA avg max	1000 down/ 500 up FCC "Gigabit"
MBEP consumer					
MBEP business					
MBEP combined					
North county					
South county					
Monterey					
San Benito					
Santa Cruz					

Santa Cruz County conducted a broadband survey in spring of 2018 as well. Their data provided some information on price sensitivity of existing customers. 42% of the residential respondents in the Santa Cruz County survey reported that they would be willing to pay more for service that suits their needs regardless of what price they are currently paying. Of those who stated that they would pay more, 71% reported that they would be willing to pay up to $50 more per month. 70% of all respondents currently pay less than $100 per month.

1.7. Findings

Using the findings from the studies shown above as well as other data provided by CCBC, the Broadband Leadership Team made the decision to adopt a new regional standard: **100 Mbps download and 20 Mbps upload**. As indicated by the coverage map earlier in this document the majority of the Monterey Bay region (based on December 2016 data) is not served or is underserved based on this regional standard. Coverage is not even close to the 98% claimed by the State of California as defined by its standard, nor is the California standard sufficient for our users' needs.

New standards at 100 down/20 up would mean that only 38% of the region would be served on a population basis. Once the Charter Communications upgrade is completed, coverage will be closer to 98% at 6 down/1 up standard, but will not be improved for 100 down/20 up coverage.

2. Methodology

The NOI seeks "comment on a methodology the Commission could use to update the benchmarks". The California Public Utilities Commission (CPUC) has a broadband mapping program that takes data provided by carriers via FCC form 477 and validates it. The CPUC also conducts rigorous field tests of mobile data speeds throughout California on a regular basis, and is in the process of extending this independent testing to fixed connections. The tools used by the CPUC to conduct

these measurements are made available to the general public, and the data generated through this effort is published and analysed alongside its systematically collected data.

The CCBC has been using these data sets for nine years. The City of Watsonville's geographic information systems unit maintains an independent broadband database that also includes key facilities, such as middle and last mile fiber, and is used to support broadband development efforts in our region.

We recommend that the FCC adopt the CPUC's methodology, which blends carrier-reports, availability data that is *independently and rigorously* gathered, and crowd sourced material into a single database, and is used to 1. develop independent analysis, 2. inform the public and industry professionals via published analysis that is largely free of carrier bias, and 3. made available to local and regional development bodies for the purpose of community specific analysis.

Conclusion

We ask the Commission to take these recommendations into consideration when issuing its next Broadband Deployment Report.

Date: 17 September 2018

Respectfully Submitted,

Stephen A. Blum

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By: Stephen A. Blum

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